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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/838,676 | 04/19/2001 | Robert R. Hayes | B-4093 618554-9 | 8155 |

7590 02/13/2004
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EXAMINER

MENEFEE, JAMES A

ART UNIT PAPER NUMBER

2828

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant N .

09/838,676

Applicant(s)

HAYES, ROBERT R.

Examiner

James A. Meneffee

Art Unit

2828

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-23 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 24-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.



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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 20040116.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response

This action is in response to the response filed 12/1/2003. Claims 1-26 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Wight et al. (US 5,082,342). Wight discloses the claimed invention as follows:

Regarding claim 1, Wight discloses a laser cavity 10 comprising an electrically sensitive material and having a length dimension and a width direction, the cavity producing a laser light propagating substantially parallel to the length dimension of the cavity. Excitation occurs in the waveguide device 10, and thus it may be interpreted as a laser cavity. There are further means for applying a uniform electric field across said cavity, said electric field propagating substantially perpendicularly to the direction of the propagation of laser light, and having substantially the same intensity along a length dimension of the cavity at any one point in time.

The means for applying an electric field are accomplished by the electrode 32 and the ground 38. The voltage source 36 will necessarily produce an electric field that propagates perpendicularly, i.e. vertically through the laser body, to the emission of the edge-emitted laser light.

Art Unit: 2828

Regarding claim 2, the means for applying the electric field are not explicitly stated as a traveling wave structure, however by definition the electric field is formed as a traveling wave.

The means are equal to or larger than the cavity.

Regarding claim 3, the traveling wave structure comprises electrodes with the cavity disposed there between.

Regarding claim 4, the electrodes may be interpreted as a transmission line. The electrodes have a width greater than that of the cavity.

Regarding claim 5, the laser cavity is a semiconductor structure.

Regarding claim 6, the laser cavity is pumped from the side.

Regarding claim 7, lithium niobate may be included in the cavity.

Regarding claim 24, the limitations are disclosed as in the above rejections, and further there is an integrated interferometer 456, thus there are longitudinally coincident gain and phase sections. The laser body and the interferometer 456 are longitudinally coincident. The interferometer is disclosed to provide phase modulation. See col. 29.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2828

Claims 8 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wight. Wight discloses the claimed invention as shown above, but does not disclose the following:

Regarding claim 8, it is not disclosed that the cavity includes an index grating. Laser cavities are well known to include index gratings as a means for selecting a wavelength of the cavity. It would have been obvious to one skilled in the art to include an index grating so that one may change the wavelength of the emitted light, as is well known.

Regarding claim 25, it is not disclosed that the traveling wave structure comprises the structures as claimed. However, such structures are well known in the art as usable as electrodes. In fact, applicant states on p. 14 that microwave striplines are well known in the art. Such electrodes will provide an equivalent operation of the device. It would have been an obvious art known substitution of equivalents to use any of these well known electrodes in place of the electrodes of Wight.

Regarding claim 26, it is not disclosed the traveling wave structure is tapered with the maximum width adjacent to the cavity. However, changes in shape have been held to be obvious. It would have been obvious to one skilled in the art to change the shape of the traveling wave structure of Wight absent any evidence that the shape in the claim is significant.

Allowable Subject Matter

Claims 9-23 are allowed. The following is an examiner's statement of reasons for allowance:

There is not taught or disclosed in the prior art a laser system or method as claimed including *inter alia* a laser cavity where an electric field applied across the laser cavity uniformly and simultaneously changes the index of refraction across the length of the cavity. While Wight, cited above, discloses a substantially uniform electric field, it does not disclose anything about changing the index of refraction simultaneously across the length of the cavity.

Response to Arguments

The following is a response to applicant's arguments made 12/1/2003.

Regarding the Comment to the Examiner's previous arguments (p. 3-4 of response) concerning piecemeal prosecution, the Examiner has stated his position in the previous action. The Examiner notes the applicant's request for a new Examiner if piecemeal prosecution continues. The present action is a final rejection based only on rejections that were previously made, and thus piecemeal prosecution is not taking place herein.

The arguments concerning the 35 U.S.C. § 112 rejections (p. 4-9) are persuasive and the rejection withdrawn. The case law refutes the Examiner's previous use of the "essential elements" test. *See Reiffen v. Microsoft Corp.*, 214 F.2d 1342, 1347 (Fed. Cir. 2000) (cited by applicant); *see also Sun Microsystems, Inc. v. Kingston Tech. Co.*, 57 USPQ 2d 1822 (N.D. Cal. 2000) (omission of element that one skilled in the art would understand as essential does not invalidate claim.).

The Examiner rejects any assertion on p. 10 that the applicant is entitled to a withdrawal of the rejections based solely on the rejection lacking particular designations of the parts of the references relied upon. There is no basis in the law for such an assertion.

Art Unit: 2828

The rejections based on the Scalise reference have been withdrawn, and thus any arguments regarding this reference are moot.

Regarding the rejections over Wight:

Claim 1 – Wight discloses that there may be excitation in the waveguide 10. There is a p-i-n junction. Applicant's claim is drawn broadly only to a laser cavity, with no more specific recitation. Such an excitation section may be broadly interpreted as a laser cavity. The claims are to be broadly construed.

Claim 2 – applicant's stated definition of "traveling wave" is "a wave in which energy is transported from one part of medium to another." The electric field propagating between the electrodes will be transported from one part of the medium to another, namely vertically from one end to the other.

Claim 3 – there are electrodes 32,34,38 in Wight.

Claims 5-7 – there are no specific arguments, only that they are allowable via claim 1 being allowable.

Claim 8 – the Examiner has provided motivation for adding the index grating, namely to change the wavelength.

Claim 24 – the interferometer 456 provides phase modulation and thus is a phase section. The waveguide 10 (452) provides excitation and thus is a gain section. The interferometer and the gain section are longitudinally coincident. If the applicant wishes to distinguish, more specific language rather than the broad "phase section" and "gain section" should be used.

Art Unit: 2828

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (571) 272-1941. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



JM
February 9, 2004



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